



Student: **Michael Higley-Vance**

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**EL7002-8**

**Dr. Linda Collins**

**E-Learning Instructional Strategies**

**Activity #1 Part 2:  
Compare Traditional and E-Learning**

**Comments:**

**Faculty Use Only**

Hi, Michael, excellent work on the conversion of an in-class assignment to an online assignment. You have made the assignment interesting, kept to the same criteria, and also provided the appropriate online tools for the students to use. Please see additional comments in the paper. Thanks, Linda

Dr. Linda D. Collins    6.9    2.8    September 25, 2013

A Lesson Plan Conversion

Michael Higley-Vance

Northcentral University

### A Lesson Plan Conversion

The purpose of this paper is to present a traditional lesson activity converted into an online only lesson that maintains the original lesson goals, objectives, procedures and evaluation details. The paper also requires a reflection on the changes and process of the lesson conversion from traditional to online mode of delivery.

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**Comment [1]:** Comma per APA 6 (lists of three or more need a comma before "and" or "or.")

### A Traditional Lesson

**Lesson Topic/Focus:** Cooking with Fractions and Decimals

This lesson will demonstrate for 7<sup>th</sup> grade students the equivalence between decimals and fractions while students perform operations with rational numbers using a cookie recipe.

#### Lesson Objectives

- Simplify numerical expressions involving rational numbers.
- Apply and extend previous understandings of multiplication and division of fractions to multiply and divide rational numbers.
- Use proportional relationships to solve multistep ratio and percent problems.

#### Materials Needed

- Cookie Recipe (x5)
- Model Table (bowls, flour, mixer, mixing utensils, and measurement tools)
- Cookies (x125)
- Student Aprons (x28)
- Cookie Tins (x5)

**Lesson Length:** 60 minutes (1 class period)

#### Lesson Overview

In this activity students will be placed in groups of 4-6 students according to ability levels of advanced, proficient, and basic. They will be told that they are all master chefs skilled in the art of baking cookies. Students will find on the back of their seats a cooking apron in which they will put on. The teacher will have a cookie tin located on each group's table where there are cookies, one for each student in the group. The teacher will pose this question to students: "What goes into baking cookies?" The teacher will then allow students to open the cookie tin and eat the cookie. The teacher will record on the board a list of ingredients each student presents to the class.

#### Lesson Procedures

Students will be given a differentiated contextual problem solving worksheet with the lesson objectives and student learning expectations. Each ability level group will receive a variation of the same worksheet. The worksheet is comprised of a cookie recipe for 25 jumbo cookies. The ingredients are listed on the worksheet with a picture of baked cookies. Below the

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**Comment [2]:** Nice work setting the foundation and expectations for this assignment.

picture is a table providing each of the ingredients and column headings stating price, unit price, show your work, and cost per ingredient. Each ingredient and ingredient price is listed within its own row and column. Some of the cells that comprise the unit price, show your work, and cost per ingredient has been left blank depending on the ability level worksheet.

The teacher will begin the activity by calling on a student to identify the activity objective located on the worksheet and asking “how that objective can be met using this worksheet?” The teacher will then have students work individually to find the unit price of the first ingredient, butter. The teacher will provide students three minutes to complete this task independently. When the three minutes have expired the teacher will model on the board how she found the unit price of butter using the information provided on the cookie worksheet. The teacher will then ask students from each group to volunteer how they found their answers to the unit price of butter, pointing out more than one correct way to get to the correct answer. Finally a student who provided a student friendly and correct method of solving for the unit price will be asked to show the class how to take that information to find the cost per ingredient.

Once the teacher has checked for understanding and ensured that all students understand their preferred method of solving operations using rational numbers the teacher will have students work in their assigned groups to complete the same tasks above for the next ingredient, sugar. The teacher will review with students their answers at each completed ingredient asking higher order questions to ensure full understanding, application, and synthesis of the lesson objectives.

### **Closure**

The teacher will wrap up the lesson by having a student state the lesson objective. Another student will be called on to summarize what the lesson activity had students doing. A final student will be called on to tell the class one thing they learned that they did not already know.

### **Assessment**

Students will be asked to complete an exit card requiring them to answer one of two leveled questions independently before leaving class. The first question provides students with an additional ingredient asking students, “How many teaspoons of baking soda would you need to make 100 jumbo cookies according to the recipe provided?” This question has been created for students who are in the basic ability group.

The second question option is longer and has multiple parts designed specifically for students in the proficient and advanced ability groups. This question states, “Your friend wanted to make a batch of cookies but they only had one egg. What would your friend need to do to the recipe provided if they only had one egg? How many cups of walnuts would your friend need if you used your solution to help solve their problem?” Students who are assigned this question will be required to explain their answer in writing.

### **The Converted Lesson**

#### **Lesson Topic/Focus:** Cooking with Fractions and Decimals

Using a flipped classroom approach to teaching and learning this lesson will demonstrate for 7<sup>th</sup> grade students the equivalence between decimals and fractions while students preform operations with rational numbers.

**Lesson Objectives**

- Simplify numerical expressions involving rational numbers.
- Apply and extend previous understandings of multiplication and division of fractions to multiply and divide rational numbers.
- Use proportional relationships to solve multistep ratio and percent problems.

**Materials Needed**

- Student google accounts
- Google sites webpage
- Teacher videos
- Kitchen props
- Cookie recipe
- Pictures of bowls, flour, mixer, mixing utensils, and measurement tools

**Lesson Length:** 2 day span

**Lesson Overview**

In this activity students will log into their class google sites webpage and utilize their google accounts to collaborate on a google spreadsheet created by the teacher. The google sites webpage will serve to provide students with a real life cooking with math scenario. The shared spreadsheet will have two sheets, the first sheet entitled *Contextual Problem Solving with Rational Numbers* and the other sheet entitled *The Recipe*. These sheets of the spreadsheet document will serve as the specific assignment introduction and collaborative activity assignment. Students will be assigned a piece of the larger assignment activity according to ability levels of advanced, proficient, or basic.

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**Comment [3]:** Google should be capitalized

**Lesson Procedures**

Located on the class google sites webpage will be the lesson page link. This lesson activity will offer several numbered steps students will be instructed to follow. Each step will require students to read the information provided and accomplish a task using an online learning resource application. Once students have accessed the class webpage and lesson page students will follow these steps:

1. Day 1, 8:00am-12pm: The student will watch a teacher video introduction where students will be told that they are all master chefs skilled in the art of baking cookies. The teacher will be in a kitchen wearing an apron and standing at a kitchen island with bowls, flour, and measuring tools. The teacher will pose this question to students: "What goes into baking cookies?" Students will be instructed to visit the discussion forum of the class webpage to submit at least two different examples than those others have already submitted before moving on to step two.
2. Day 1, 8:00am-12pm: The student will watch another video where the teacher is telling students that she needs their help figuring out how much of the ingredients will be needed and how much each ingredient will cost to bake 25 jumbo cookies.

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**Comment [4]:** Will the instructor of the class be the teacher in the video?

Behind the teacher will be a white board that lists the class objectives. The teacher will review these goals by stating that (1) it is important to pull from their prior knowledge of multiplication and division of fractions to multiply or divide rational numbers, (2) they will be using proportional relationships to solve multistep ratio and percent problems, and (3) in the end they will have successfully figured out how much each ingredient cost and how many of each ingredient was needed for the recipe by using mathematical operations and rational numbers. Finally the teacher will ask this question, “What do you think this assignment objective will help you be able to do?” Students will be instructed to visit the discussion forum of the class webpage to submit their thoughts before moving on to step three.

3. Day 1, 1:00pm-4pm: The student will click on the google spreadsheet document link entitled *Contextual Problem Solving with Rational Numbers*, which will be comprised of a cookie recipe for 25 jumbo cookies. The ingredients are listed on the worksheet with a picture of baked cookies. Additionally, the directions, student learning expectations, and activity goals are also listed. Below this picture will be a google form link with several practice problems providing students with information on how to solve each example problem. The teacher will be available during this time online and will be available in the discussion forum to answer any questions students might have as they attempt to complete the practice items. Students will be required to successfully complete this google practice form before moving on to step four.
4. Day 2, 8:00am-12pm: The student will read the next set of instructions located on the *Contextual Problem Solving with Rational Numbers* spreadsheet page. These instructions state that the student will find the missing information in the spreadsheet entitled *The Recipe* of the ingredient assigned to them only. The student will click on the google spreadsheet document link entitled *The Recipe* where they will find assigned rows of ingredients and column headings stating **Price, Unit Price, Show your Work, and Cost per Ingredient**. Each ingredient and ingredient price is listed within its own row and column. Some of the cells that comprise the **Unit Price, Show your Work, and Cost per Ingredient** have been left blank depending on the ability level of the students assigned to them. Three different video links will be provided demonstrating three different ways, using the same example, to get a correct answer. During this portion of the activity students will be encouraged to use the chat feature of the spreadsheet document to collaborate and discuss their mathematical process or ask to seek help from other students or the teacher. Students will be required to ask at least one question, provide at least one observation of another student’s work, and ensure that the work they’ve completed is correct before moving on to step five.

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**Comment [5]:** Is there a provision for the student to have an actual cookie as in the in-class version?

## Closure

5. Day 2, 1:00pm-4pm: The student will be instructed to visit the discussion forum of the class webpage to submit a thorough explanation of their mathematical thinking answering these core questions:
  - a. What exactly did the problem ask me to do?
  - b. How exactly did I solve the problem and what was my answer(s)?

- c. How can I justify my answer(s) is/are correct?

### Assessment

Once the teacher has checked the class webpage discussion forum to ensure that all students understand their preferred method of solving operations using rational numbers the teacher will have students work individually to complete a google assessment form requiring them to answer one of two leveled questions. The first question provides students with an additional ingredient asking students, “How many teaspoons of baking soda would you need to make 100 jumbo cookies according to the recipe provided?” This question has been created for students who are in the basic ability group.

The second question option is longer and has multiple parts designed specifically for students in the proficient and advanced ability groups. This question states, “Your friend wanted to make a batch of cookies but they only had one egg. What would your friend need to do to the recipe provided if they only had one egg? How many cups of walnuts would your friend need if you used your solution to help solve their problem?” Students who are assigned this question will be required to explain their answer in writing utilizing the 8 common core mathematical practices.

### Reflecting on the Process

In this lesson conversion I chose to take a flipped classroom approach to a traditional math lesson and turn it into an online delivery only activity. In both lesson types, traditional and online, the same activity objectives and student learning expectations were required. The online learning environment I've created is established using a google sites webpage created for a 7<sup>th</sup> grade math class. This lesson has been created to span a two day period allowing time for students and teacher to synchronously collaborate and learn while other times are provided for asynchronous learning practice and discovery. Both PC and MAC operating systems can access this learning environment online and the learner applications required to teach the lesson objectives are web based, accessible to anyone with an internet connection.

I follow McREL's instructional strategies learning model to create lessons utilizing the characteristics, which will best meet the lesson objectives and learner needs. McREL's approach to classroom lesson planning is characterized by nine different instructional strategies: (a) setting the objective, (b) reinforcing effort, (c) cooperative learning opportunities, (d) advancing

LCollinsAZ 9/25/13 8:33 AM

**Comment [6]:** comma

LCollinsAZ 9/25/13 8:34 AM

**Comment [7]:** Just as a note, you will want to spell out contractions for scholarly writing.

LCollinsAZ 9/25/13 8:34 AM

**Comment [8]:** spelling

questions, (e) nonlinguistic representation, (f) summarizing, (g) providing practice, (h) identifying similarities and differences, and (i) generating new ideas (Dean, Stone, Hubbell, & Pitler, 2012). I have found as a traditional educator, technology teacher, and classroom technology coach that McREL's instructional strategies are best used to create both lesson format types and addresses the teaching and learning strategies, and styles, needed in both learning environments.

One of the teaching strategies used in the original lesson addressed the needs of students at different ability levels by providing them with a hands on approach to group learning. In order to convert this intentional instructional goal to an online learning environment a student friendly and easy to use online collaborative tool would need to be integrated into the class webpage. I immediately thought of google docs and its collaborative, easy to use, multi-purpose application features as just the e-learning tool to meet all of the learning objectives indicated in the lesson.

The traditional lesson format was converted using five main online applications: (1) a google sites webpage as the mode for online instruction delivery, (2) a google doc spreadsheet for practice and class collaboration, (3) a google doc form for assessment, (4) the google sites webpage discussion forum used for synchronous collaboration, independent practice, as well as checking for understanding, and finally (5) youtube video to provide the lesson introduction and necessary instructional guidance. These online applications are Web 2.0 technologies, which can facilitate successful collaboration through writing, collaboration, and peer editing among students (Yang, 2010).

The converted lesson began with a video hook meant to engage students' interests and cause students to become excited about the lesson objectives not unlike the original in class hook. This technique is a quick strategy for introducing the lesson objectives to students in a

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**Comment [9]:** Great approach!

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**Comment [10]:** This is a great choice as it is easy to use, free to use, and good for collaboration.

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**Comment [11]:** YouTube



“direct and meaningful manner” (Marinchek, 2010) online. The Web 2.0 applications listed above allow students to become visually engaged, interact with others, discuss information, pose new questions, and access student learning using both synchronous and asynchronous methods. In an online learning environment students may lose attention and focus for learning due to the fact that some e-learning tools do not affectively engage student learning (Hosam, Timothy, & Merza, 2013). Great online teachers get students immediately engaged for in-depth learning by using the hook technique and proven affective Web 2.0 e-learning tools.

### Conclusion

Perhaps the best reason for converting a traditional lesson to an online lesson format is that sometimes the lesson is “just plain boring” (Rosenberg, 2001, p. 47) and although there are different benefits between the traditional and online instructional delivery there are “no important differences . . . between the functions of teachers in the two teaching modes” (Diaz & Entonado, 2009, p. 342). In an online learning environment there are many similarities in teaching strategies and lesson structure of the traditional lesson and the virtually connected one. While the process of teaching is similar, they are not exactly the same. There are many adjustments that must be made between the two delivery modes, but the most important element that the teacher can deliver is a collaborative and engaging learning experience where the teacher is attentive to the learning needs of their students. Society today has come to rely more and more on information technology resources and this provides educational organizations the opportunity to provide teaching and learning to students in a whole new meaningful and relevant approach.

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**Comment [12]:** I agree, this is an effective technique.

## Reference

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**Comment [13]:** Excellent work constructing your references in APA 6 format.